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WAND Demonstration

Rob Gerritsen and Howard L. Morgan

76-06-01

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) A demonstration of the online interactive user interface in the WAND system. Various features are demonstrated including an interactive data manipulation language, a bootstrapping HELP facility, and schema browsing commands. WAND is a plex DBMS fashioned after the CODASYL database task group (DBTG) specifications.		

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The WAND (Wharton Alerting Network Database) system is a limited implementation (on the DEC10) of the CODASYL Data Base Task Group April 71 Report (DBTG). The principal differences are that WAND does not support or is limited with respect to:

1. Sub-schemas.
2. Multiple areas.
3. Privacy locks (only for entire database).
4. Set occurrence selection (only through current of set).
5. Pointer arrays.
6. Sorted sets.

The Data Definition Language (DDL) is exactly as specified in the DBTG report, as is the COBOL Data Manipulation Language (DML). In addition, WAND supports a Fortran DML and an interactive DML. The interactive DML is provided by a program called DBLOOK, which is the subject of this demonstration.

DBLOOK provides:

1. Interactive DML (to navigate the database).
2. Interactive access to the schema (to provide a map for the database navigator).
3. HELP (to explain itself and the DML).
4. Graphing and printing routines (to prepare data for human consumption).

With these features, DBLOOK is useful to the:

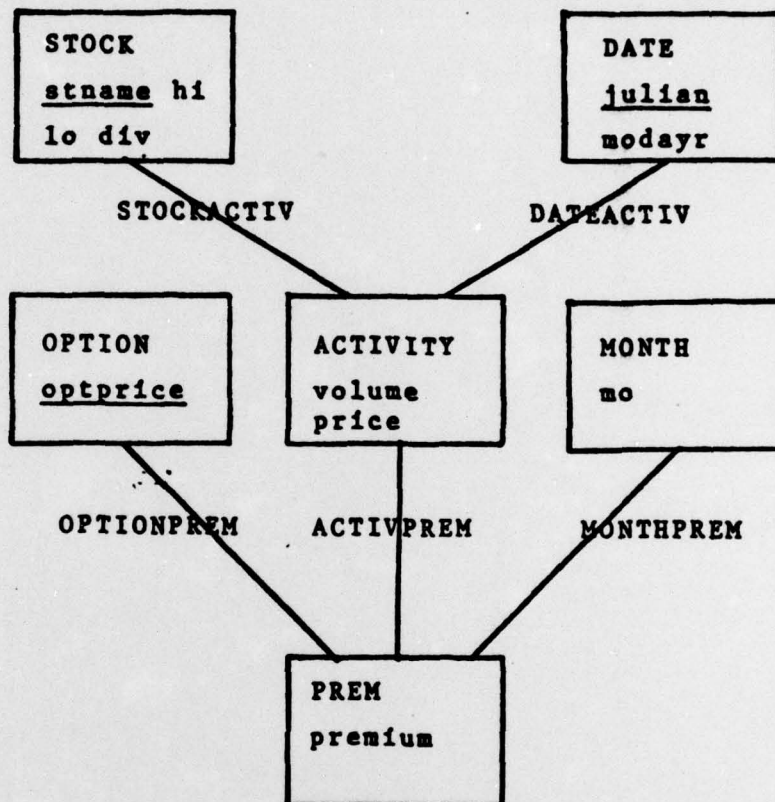
1. Data Base Administrator who might want to probe the data for suspected errors or other conditions warranting his attention.
2. To the programmer to build a test database or to debug a navigational procedure.
3. To the student who is learning DML.



# WAND Bibliography

1. Buneman, O. Peter, and Howard Lee Morgan, "Alerting in Database Systems, Concepts and Techniques," Decision Sciences Working Paper 75-12-02, December 1975.
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Demonstration database for WAND (stock options).

SCHEMA NAME IS CBOE DATABASE SIZE IS 39 PAGES.

RECORD NAME IS STOCK LOCATION MODE IS CALC USING STNAME  
DUPLICATES NOT ALLOWED  
STNAME TYPE IS CHARACTER 10  
HI TYPE IS REAL  
LO TYPE IS REAL  
DIV TYPE IS REAL.

RECORD NAME IS OPTION LOCATION MODE IS CALC USING OPTPRICE  
DUPLICATES NOT ALLOWED  
OPTPRICE TYPE IS FIXED.

RECORD NAME IS PREM LOCATION MODE IS VIA OPTIONPREM  
PREMIUM TYPE IS REAL.

RECORD NAME IS MONTH LOCATION MODE IS CALC USING MO  
DUPLICATES NOT ALLOWED  
MO TYPE IS CHARACTER 5.

RECORD NAME IS ACTIVITY LOCATION MODE IS VIA STOCKACTIV  
VOLUME TYPE IS FIXED  
PRICE TYPE IS REAL.

RECORD NAME IS DATE LOCATION MODE IS CALC USING JULIAN  
DUPLICATES NOT ALLOWED  
JULIAN TYPE IS FIXED  
MODAYR TYPE IS CHARACTER 10.

SET NAME IS OPTIONPREM MODE IS CHAIN LINKED TO PRIOR ORDER IS LAST  
OWNER IS OPTION MEMBER IS PREM LINKED TO OWNER.

SET NAME IS MONTHPREM MODE IS CHAIN LINKED TO PRIOR ORDER IS LAST  
OWNER IS MONTH MEMBER IS PREM LINKED TO OWNER.

SET NAME IS ACTIVPREM MODE IS CHAIN LINKED TO PRIOR ORDER IS LAST  
OWNER IS ACTIVITY MEMBER IS PREM LINKED TO OWNER.

SET NAME IS STOCKACTIV MODE IS CHAIN LINKED TO PRIOR ORDER IS LAST  
OWNER IS STOCK MEMBER IS ACTIVITY LINKED TO OWNER.

SET NAME IS DATEACTIV MODE IS CHAIN LINKED TO PRIOR ORDER IS NEXT  
OWNER IS DATE MEMBER IS ACTIVITY LINKED TO OWNER.

-----  
DDL for WAND demonstration database (CBOE -Chicago Board Options  
Exchange).



\*x dblook

Welcome to DBLOOK and WAND. Type HELP for info.

\* @demo.fil

@ HELP

TO GET A LIST OF VALID COMMANDS TYPE 'COMMAND'.

TYPE 'EXIT' TO TERMINATE EXECUTION.

IF YOU WANT INFORMATION ABOUT A SPECIFIC COMMAND TYPE

'HELP <COMMAND>' AS IN 'HELP FINDO'.

COMMANDS MUST BE CONTAINED ON A SINGLE LINE, HOWEVER TWO OR MORE COMMANDS MAY BE ENTERED IF THEY ARE SEPARATED BY A SEMICOLON.

@

@ command

COMMANDS ARE (FOLLOWED BY THEIR LEGAL ABBREVIATION):

@	@	COMMAND	CO	CURRNT	CU	DBCLOS	DBC	DBOPEN	UBO
DELETE	DE	DISPLAY	DI	DO	DO	ELSE	EL	ERRSTA	ER
EXIT	EX	FINDAP	FAP	FINDC	FC	FINDO	FD	FINDO	FO
FINDPO	FPO	GET	GE	GRAPH	GR	HELP	H	IF	IF
ITEMS	IT	MODIFY	M	OD	O	PLOT	P	RECORDS	REC

REPEAT	REP	SETCUR	SETC	SETS	SETS	STATUS	STA	STORE	STO
TO	T								

<NAME>, OR <ITEM>=.

<NAME> IS ANY SET, RECORD OR ITEM NAME AND THE SYSTEM WILL DISPLAY STRUCTURAL INFORMATION ABOUT THE NAMED ENTITY.

<ITEM>= PERMITS ASSIGNMENT OF VALUES TO ITEMS.

IN THE SYNTAX OF THESE COMMANDS <SETN>, <REC�>, AND <ITMΝ>

ARE GENERIC TERMS FOR SET NAME, RECORD NAME AND ITEM NAME.

WHEREVER SUCH A NAME IS REQUIRED A VALUE OF 0(ZERO) WILL INDICATE A REFERENCE TO THE MOST RECENTLY NAMED OF THE SAME TYPE.

@

@ help status

STATUS or STA

Displays the STATUS of DBLOOK.

In GET mode, a record is directly moved to working storage following a FIND.

In NOGET mode a GET must be explicitly executed to get the data.

PROMPT mode will cause DBLOOK to ask for needed data values on STORE or FINDC.

The values of other DBLOOK parameters are displayed, see reference manual for a complete explanation. STATUS can be changed with the TO command.

EXAMPLE: STATUS ,

@

@ help to

TO <STATUS VAR> <VALUE> or T <STATUS VAR> <VALUE>.

This causes the DBLOOK STATUS to be changed.

If <STATUS VAR> is a mode such as GET, PROMPT, or DISPLAY, then <VALUE> is not necessary.

PROMPT and GET modes can be altered, the characters that function as QUOTE,

SEMICOLON, ASTERISK, USER DELIMITER, and ASSIGNMENT can be changed,

the default repeat limit can be changed, and display formats can be altered.

EXAMPLE: TO PROMPT;TO ASTERISK :

@



```

@      to comment /
@      /we have changed comment char to /.
@
@      status
GET
PROMPT
DISPLAY
NOLABEL
QUOTE      /
SEMIC      ;
ASTERISK   *
REPEAT#    10
USER       !
ASSIGN     =
ATSIGN     @
COMMENT    /
XSIZE      60
YSIZE      20
FIXFMT     1X,I10,
REALFMT    1X,F8.3,
@
@
@      help dbopen
DBOPEN     <SCHEMA> <PASSW> <MODE> or DBO <SCHEMA> <PASSW> <MODE>.
<SCHEMA> is the schema name, <PASSW> is the password for the
privacy lock, and <MODE> is 0 to read or 1 to update the database.

```

EXAMPLE: DROPE CBOE 0 1

```

@
@
@      /now open for update:
@      dbopen cboe 0 1
@
@      / and we can get some information out of the schema:
@
@      records
STOCK      OPTION      PREM      MONTH      ACTIVITY      DATE
@
@      sets
OPTIONPREM STOCKACTIV MONTHPREM  ACTIVPREM  DATEACTIV
@
@      items
STNAME     HI          LO          DIV          OPTPRICE     PREMIUM      MO
VOLUME     PRICE       JULIAN    MODAYR
@

```

```

@      / we can also find out information about particular items by typing t
r names:
@
@      premium
CONTAINED IN PREM          RECORD
TYPE IS REAL.'
@
@      prem
RECORD NAME IS PREM
LOCATION MODE IS VIA OPTIONPREM
CONTAINS THE FOLLOWING ITEMS:
PREMIUM
MEMBER OF OPTIONPREM
MEMBER OF MONTHPREM
MEMBER OF ACTIVPREM
@
@      activprem
SET NAME IS ACTIVPREM MODE IS CHAIN
LINKED TO PRIOR
ORDER IS LAST
OWNER IS ACTIVITY
MEMBER IS PREM          LINKED TO OWNER.

@
@      activity
RECORD NAME IS ACTIVITY
LOCATION MODE IS VIA STOCKACTIV
CONTAINS THE FOLLOWING ITEMS:
VOLUME      PRICE
MEMBER OF STOCKACTIV
OWNER OF ACTIVPREM
MEMBER OF DATEACTIV
@
@      stockactiv
SET NAME IS STOCKACTIV MODE IS CHAIN
LINKED TO PRIOR
ORDER IS LAST
OWNER IS STOCK
MEMBER IS ACTIVITY    LINKED TO OWNER.
@
@      / now we are going to do some operations on data:
@      / after help, we list all stocks on which we have information:
@
@      help findap
FINDAP      <POSITN> 0 <RECN> or FAP    <POSITN> 0 <RECN> .
Permits positional find sequentially within the database.
<POSITN> may be FIRST, LAST, NEXT, PRIOR or an integer.
If <RECN> is 0, then any record type may be found relative to the current of
run-unit; otherwise a record of the named type is found relative to the
current of that type.

EXAMPLE: FINDAP NEXT 0 EMPLOYEE
@

```

```

@      stock;finda first 0 stock
RECORD NAME IS STOCK
      LOCATION MODE IS CALC USING STNAME      DUPLICATES ARE NOT ALLOWED
CONTAINS THE FOLLOWING ITEMS:
STNAME      HI      LO      DIV
OWNER OF STOCKACTIV
IRM          264.500  223.375  7.000
@
@      finda next 0 stock;rep 100
HONWLL      56.125  32.750  1.400
N SEMI      55.375  39.000  0.250
SYNTEX      36.250  28.625  0.400
XEROX       68.375  50.375  1.000
C DATA     26.750  17.625  0.000
TEX IN      124.000  93.125  1.000
POLAR       41.875  31.250  0.320
ERRSTA =    307
ERRSTA RESET TO 0.
@
@
@
@      / the repeat was terminated by DBLOOK when ERRSTA became non-zero.
@      / since DBLOOK has reacted to the change in ERRSTA it resets it to zero.
@
@
@      / next we generate a report about a specific stock (SYNTEX),
@      / but first we will use help to explain the commands we are about to use.
.
@
@      help findc
FINDC      <RECN> <POSITN> or FC      <RECN> <POSITN> .
Finds <RECN> using a calculated key.
POSITN is 'FIRST' or 'NEXT' which finds next duplicate.
FIRST is assumed if POSITN is not specified.
Assign value to CALC key with <ITEM>= command.
In PROMPT mode, DBLOOK will ask for a value for the key to be entered.

EXAMPLE: FINDC DEPT NEXT
@
@      help findpo
FINDPO      <POSITN> <SETN> <RECN> .
or FPO      <POSITN> <SETN> <RECN> .
<POSITN> must have 'FIRST', 'LAST', 'NEXT', 'PRIOR',
or 'N' as value. ('N' is a signed ASCII number).

EXAMPLE: FINDPO FIRST WORKS EMPLOYEE
@

```



```
@      help findo
FINDO   <SETN> or FO   <SETN> .
Finds owner of current occurrence of SETN.
```

EXAMPLE: FINDO WORKS

```
@
@      help display
DISPLAY <ITMN>/<RECN> ... or DI   <ITMN>/<RECN> ... .
This command will display the current values of any combination
of items or records.
```

EXAMPLE: DISPLAY DEPMGR EMPLOYEE DEPTNO

```
@
@      finde stock
STNAME  @      . SYNTEX
SYNTEX   36.250   28.625   0.400
@
@      / since we will explicitly tell DRLOOK which items to display,
@      / we will turn off the automatic display feature.
@      to nodisplay
@
@      / on the next line we ask for all date, price, volume information
@
@      findeo next stockactiv activity;findo dateactiv;display modayr price;r
100
MAY 11, 76   28.375
MAY 12, 76   28.625
MAY 13, 76   28.625
MAY 14, 76   28.000
MAY 17, 76   27.750
MAY 18, 76   27.625
MAY 19, 76   27.250
MAY 20, 76   26.750
ERRSTA =     307
ERRSTA =     307
MAY 20, 76   26.750
ERRSTA RESET TO 0.
@
@
```

```

@
*      fc stock
STNAME      *      XEROX
*      @JUL88.plt
@      to comment /
@
@      / finally a more complex query, that has been pre-stored in a file.
@      / in this query we will plot on a graph the stock price and the
@      / premium for JULY options in XEROX.
@
@      help @

```

W <FILE-NAME> or @ <FILE-NAME>.  
 Causes DBLOOK to read all commands from the named file to its end.  
 The default extent is .DAT. To read a file which has no extent,  
 include a period after the file name.

EXAMPLE: @CFILE

```

@
@      help plot
PLOT      <ITMN> <ITMN> <CHAR> or P      <ITMN> <ITMN> <CHAR> ,
First item name value is X-value and second item name value is Y-value
of location where CHARACTER is plotted,
or second item name is height of bar for a histogram.
If CHAR is omitted an asterisk (*) is plotted.
Up to 500 points (200 bars) may be plotted on a single graph. To get a print
of the graph, use GRAPH!! command.

```

EXAMPLE: FPO NEXT PRICES STOCK;PLOT PRICE VOL +;REPEAT 50;GRAPH  
 YES? YOU HAVE INTERRUPTED ME.  
 TYPE C TO LET ME CONTINUE OR S TO STOP ME: C

```

@
@      help graph
GRAPH      or GR
Causes a graph or histogram of up to 500 plotted points to be generated.
The graphing program will prompt the user prior to generating the graph.
The user can control the use of loss on either axis, and the range of each axis
The physical size of the graph is determined by XSIZE and YSIZE (part of STATUS
The PLOT command delivers coordinates of the points that are to be plotted.

```

EXAMPLE: FPO NEXT PRICES STOCK;PLOT PRICE VOL;REPEAT 50;GRAPH

```

@
@
@      fc stock
STNAME      @      XEROX
@
@
@
@      fpo first stockactiv activity;fpo dateactiv
@

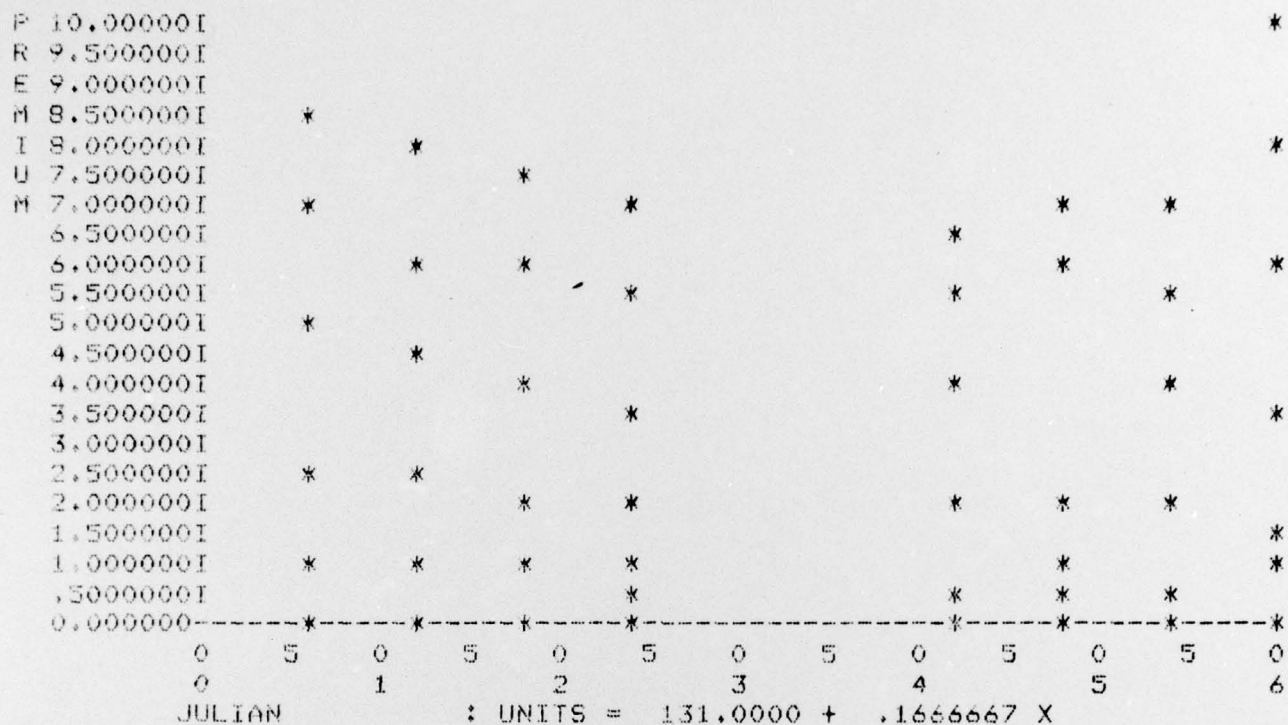
```

EEESTA 307



GRAPH OR HISTOGRAM (G H): G





TYPE C TO CONTINUE WITH SAME DATA:

```
@
@ / and we also plot the price activity
@
@ fo stockactiv
@
@ fpo next stockactiv activity;fo dateactiv;plot Julian price;res
ERRSTA = 307
ERRSTA = 307
ERRSTA RESET TO 0.
@
@ graph
GRAPH OR HISTOGRAM (G H): G
X VALUES RANGE FROM 132.0000 TO 141.0000
Y VALUES RANGE FROM 49.87500 TO 54.00000
LOG SCALE AXES (X Y XY):
LIMITS (X Y XY): XY
X-AXIS (LOW HI): 131 141
Y-AXIS (LOW HI): 45 55
```

P 55.00000I  
 R 54.50000I  
 I 54.00000I  
 C 53.50000I  
 E 53.00000I  
 52.50000I  
 52.00000I  
 51.50000I  
 51.00000I  
 50.50000I  
 50.00000I  
 49.50000I  
 49.00000I  
 48.50000I  
 48.00000I  
 47.50000I  
 47.00000I  
 46.50000I  
 46.00000I  
 45.50000I  
 45.00000I

\*

\*

\*

\*

\*

\*

\*

\*

0	5	0	5	0	5	0	5	0	5	0	5	0
0		1		2		3		4		5		6

JULIAN : UNITS = 131.0000 + ,1666667 X

TYPE C TO CONTINUE WITH SAME DATA:

@

\* exit

ERRSTA = 0

END OF EXECUTION

CPU TIME: 20.45 ELAPSED TIME: 13:19.77

EXIT

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